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ABSTRACT

Although instructional systems design (ISD) has traditionally been used as a micro-level model to design instructional interventions, there has been in recent years a trend toward using the systems approach for more macro-level applications such as performance technology and educational systems design. This paper provides an overview of nontraditional degree programs and shows that the difference between traditional instruction and ISD is equivalent to the difference between traditional and nontraditional degree programs. A popular ISD model is used to show how ISD can be adapted for use at a macro level to design nontraditional degree programs for adult students. In the traditional institutional model of instruction, learners play a relatively passive role. The developer of an alternative external degree program uses learner-centered thinking to consider what the learner should know and be able to do for a bachelor's degree, how much the learner already knows, and the most effective and efficient ways to meet these objectives. Models and procedures used to design learner-based, mastery-level instruction are the same models that can be used to design learner-based degree programs. One table and three figures illustrate the discussion. (Contains 18 references.) (SLD)

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Macro I.S.D.: Using an Instructional Design Paradigm to Plan Non-Traditional Degree Programs

Paper Presented at the Annual Conference of the
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Macro I.S.D.: Using an Instructional Design Paradigm to Plan Non-Traditional Degree Programs

Anthony A. Piña

Introduction

Walter Dick has reminded us that with the advent of new ideas, such as constructivism and total quality management in education, we are faced with the need to reassess the viability of our existing paradigms and models, such as instructional systems design (Dick, 1993). Models, such as the systems approach, remain viable as they are able to be used to solve our problems. Although ISD has traditionally been used as a micro-level model to design instructional interventions, there has been, in recent years, an encouraging trend of using the systems approach for more macro-level applications, such as performance technology (Mager, 1987; Mager & Pipe, 1984; Rossett, 1990) and educational systems design (Banathy & Jenks, 1990; Kahn & Reigeluth, 1993; Salisbury, 1990).

The purpose of this paper is fourfold:

- To provide an overview of nontraditional degree programs.
- To demonstrate that the difference between traditional instruction and ISD is analogous to the difference between traditional and nontraditional degree programs.
- To present an example of how a popular instructional systems design model can be adapted for use at a macro level to design nontraditional degree programs for adult students.
- To demonstrate that the systems approach is a viable model that can offer solutions to various types of educational problems.

The problem

Adult re-entry students, those 25 years of age or older who have returned to pursue college studies, are the fastest growing segment of our student population. Of all currently enrolled college students, two out of five belong to this group (Klein, 1990). Until recently, our present college system has had difficulty meeting the needs of these learners, who often feel out of place or "behind" younger peers who entered college straight from high school (Klein, 1990; Pierson and Springer, 1988). Re-entry students are generally highly motivated (Pierson and Springer, 1988) and achieve at a level equal to or higher than younger students (Klein, 1990). It appears that adult re-entry students bring certain critical skills and experience that enables them to more fully avail themselves of educational opportunities.

Unfortunately, many professionals and other working adults have encountered a great deal of difficulty in their efforts to further their education. Many factors contribute to this difficulty, including a lack of available courses that meet after work, location of classes, insufficient independent study or correspondence courses, difficulty in transferring units from several institutions, residency requirements, and lack of programs that meet individual learner needs. Many of these adult learners are facing a dilemma. They find themselves in need of a college degree to advance in their careers or desire personal enrichment, but cannot leave work to do so.

Although professionals often have skills and expertise which far surpass lesser experienced full time college students, they may lack sufficient "units" for an undergraduate degree. Many express a feeling of frustration (ie. "With my current schedule, I'll never have time to finish my degree.")

Special programs for adult learners

In response to these needs, many colleges and universities are now providing special programs that allow working adults to complete their degrees by attending classes at nights or on weekends, sometimes at their actual work site. Many of these institutions offer accelerated courses that can be completed in less than a typical semester. More institutions of higher learning are offering independent study and correspondence courses and accepting higher amounts of these courses as transfer units. The amount of courses taught via distance learning, television, videotapes, cassettes and other forms of alternative delivery increase dramatically with each new year.

Several colleges have established learning centers in cities and military bases across the nation. Students may pursue degrees at these centers and complete their residency requirements without having to take courses at the home campus.

Nontraditioninal degree programs

More innovative and controversial than the external academic centers are the "alternative" or "nontraditional" external programs. These programs have

characteristics that differ radically from traditional degree programs (Bear, 1988, 1990; Thorson, 1992).

- They often require little or no residency at the degree granting institution
- Nontraditional programs are built upon the concept that college-level knowledge can be learned both inside and outside the classroom. These programs tend to be much more liberal about how degree requirements may be fulfilled than traditional programs.
- Knowledge gained outside the classroom can be assessed by College Level Examination Programs (CLEP), Graduate Record Examinations (GRE), DANTES examinations (military), and portfolio assessments. These assessments allow learners with college level knowledge to receive credit for their skills and expertise and reduce the length of time to finish their degrees.
- Alternative learning experiences, such as books written, research reports, computer programs, and other independent projects can be used to fulfill the requirements for a degree.
- Nontraditional programs generally assume that the learner has amassed a high degree of knowledge and experience prior to commencing his or her degree program.
- Many programs allow individualized majors to be designed by the learner, in conjunction with a faculty mentor or committee.

Differences between traditional and nontraditional degree programs are illustrated in Table 1. A few of the tenets of alternative programs, such as the awarding of college credit for experiential learning, have met with criticism (Bailey, 1979). Some educators have expressed concern about the quality of nontraditional programs (Bowen, Edlestein, and Medaker, 1979), while others think that any program that deviates from the well-established norm must be a diploma mill.

Quality of nontraditional degree programs

Advocates of alternative degree programs point to the fact that their institutions are accredited by the same regional associations that accredit the traditional schools (Andrews, 1978) and that the American Council on Education has clear guidelines for the evaluation of such programs (ACE Task Force, 1990). Another testament is the fact that one of the most popular guides of alternative programs lists well over 100 accredited colleges and universities that offer off-campus college degrees, including some very well-known and prestigious private and state universities (Thorson, 1992). It is claimed that these programs are geared toward individual learner needs, rather than institutional needs, and that greater involvement and active learning is required from each student.

Studies conducted in Michigan and Texas suggest that degrees achieved through alternative programs are successful in meeting the needs of adult learners who enroll in these programs. In the Michigan study, 130 traditional and 182 nontraditional alumni showed no significant differences in their perception of their degree's importance in improving pay and promotion, effectiveness in obtaining jobs, ability to improve job skills and work performance, and enhancement of career development (Firenze, 1984).

Nontraditional students rated significantly higher in satisfaction of having the degree, enjoyment of the learning experience, and desire to obtain prerequisites for

graduate education than their traditional counterparts. Nontraditional students also placed a higher value on learning the subject area for pure interest purposes (Firenze, 1984).

In the Texas study, 863 graduates of a nontraditional program showed a high degree of satisfaction in career usefulness of the degree, improved self image, level of difficulty compared to traditional programs, and salary increase. It was suggested that the quality of both traditional and nontraditional degree programs should be assessed by the satisfaction of its graduates, rather than by less relevant criteria, such as student selectivity, admissions and programmatic homogeneity (Pierson and Springer, 1988).

Macro I.S.D.

Systematic instructional design as a metaphor

Proponents of instruction systems design (Dick and Carey, 1990; Gagné, Briggs and Wager, 1988; Knirk and Gustafson, 1986) have held to a more learner-centered conception of the instructional process (Reiser, 1987). When instruction is developed according to a systems view, it is viewed in terms of learner performance, rather than teacher or institutional performance (Mager, 1987). This learner-centered orientation of instructional designers is also the orientation championed by proponents of alternative degree programs.

The literature on alternative degree programs versus traditional degree programs is scanty. However, the differences between systematic instructional development and traditional institution-centered instruction are well documented. A recent ERIC search produced no models for alternative degree programs. Several different models for instructional development, on the other hand are present in the literature.

Traditional institutional model of instruction

The flow diagram in Figure 1 illustrates how instruction has been handled traditionally under the institutional model. This is the model most commonly encountered in our present educational system.

First, the curriculum or content of an instructional program is formulated. In the traditional model, this is accomplished at the administrative level. School boards or administrators determine what is necessary to meet learner needs.

Once the content has been established, it is then divided into manageable units or lessons, either by the institution in its choice of texts, or by the teacher. The content is then taught to the learners. The major objective of instruction in the traditional system is the teaching of the unit or lesson content to the learners. This is most often accomplished through lecture.

After the content has been disseminated, the teacher administers an examination based on the content. Following the tallying of the test scores, a norm

referenced (bell curve) scale is most often utilized to compare a given learner's score with the others in the class. Passing the course is achieved when a certain number of units or lessons are completed at a specified level (ie. "C" grade or above).

In the traditional institutional model of instruction, learners play a relatively passive role. They have little input in deciding what they need to learn and how they are to learn it. The rigid nature of the institutional model makes it difficult, if not impossible, to tailor the program to individual differences and needs of learners.

Traditional institutional model for degree programs

The flow diagram in Figure 2 illustrates the process in formulating and awarding a traditional college degree. The similarities to the traditional instructional model are apparent:

- The institution's administration decides upon the general education and specific major curriculum.
- The instructional content is divided into specific courses offered by the institution.
- Course material is taught to the learner.
- Acceptable passing level is determined for the courses. (ie. "C" grade or above)
- A degree is awarded when a certain number of prescribed courses are completed with a "C" grade or above.

As with the traditional model of instruction, the traditional degree program is designed and administered from an institutional point of view. Learners are processed

through the system, but have little voice in the development of the system.

Systematic instructional design

The instructional designer who utilizes a systems approach must address three important issues:

- **What should the learner know and be able to do at the completion of the instruction?** Answers to this question allow the developer to formulate the instructional objectives and develop the evaluation instruments for the objectives.

- **Which of these objectives does the learner already know?** Answering this question helps the developer to eliminate redundancy in the instruction and lets the teacher know what not to teach.

- **What is the most effective and efficient way to help the learner meet the objectives?** The answers to this question determine the content of the instruction and allows the learner to receive instruction with maximum efficiency and minimum waste.

Systematic alternative degree design

The developer of an alternative external degree program utilizes the same learner centered thinking:

- **What should the learner know and be able to do to qualify for a bachelor of arts degree?** A body of competencies, rather than a specific sequence of courses, become the educational objectives.

- **Which of these objectives does the learner already know?** An evaluation of prior learning decides how many of these objectives have already been met by the learner.

- **What is the most effective and efficient way to help the learner meet the objectives?** Appropriate instructional strategies may be utilized to give the learner the remaining competencies for the degree.

Toward a model for development of alternative degree programs

Figure 3 is an illustration of one of the most widely utilized systems model of instructional design (Dick and Carey, 1990; Gagné, Briggs and Wager, 1988). This model can easily be adapted for the designer of an alternative degree program. Figure 4 illustrates this adaptation.

Both instructional and alternative program designers must identify the goals of their programs (ie. what is to be accomplished?). Needs and task analyses, commonly utilized by instructional designers, can be used also by the degree program designer to determine what the competency requirements of the degree should be. The instructional designer and the degree program designer need to identify prior knowledge in order to avoid teaching what the learner already knows, thus increasing efficiency and decreasing redundancy. Subtracting the learner's prior knowledge from the competency requirements leaves the objectives, which form the basis for the program.

Systematic instructional design requires criterion referenced (mastery level), rather than norm referenced measures. Criterion referenced measures are based on the program's objectives. Learners in an alternative degree program should advance only when they have mastered all of a given course's objectives, not when they have received a 70 percent score on a rote memory test. The designers must then decide upon the strategies (attending classes, distance learning, independent study, research

projects, etc.) that will best help the learner achieve the program's objectives.

Once the program requirements and structure have been designed, appropriate experiences must be developed or selected for use by the learner. The effect of the program is then evaluated and, if needed, revised.

Discussion

Robert Mager, Charles Reigeluth, Allison Rossett, David Salisbury and others are encouraging the rest of us ISD'ers to look beyond designing instruction and use our expertise to solve corporate and institutional problems (Dick, 1993). One such problem that can benefit from a systems approach is the design of learner-sensitive programs for adult students.

The application of a systems approach to degree program planning will require a paradigm shift (Kuhn,), just as ISD requires a change from the traditional model of instruction. Well-establish concepts, such as the Carnegie Unit, will need to be reassessed along with our other models, to see if they are still viable.

The population of adult re-entry students will likely increase, rather than decrease, in the coming years. As college degrees become required credentials for more professions, the issue of educational access for adult learners will continue to rise in importance. Higher education programs will need to accommodate those who study while they maintain full time jobs. Nontraditional alternative degree programs may provide a viable option for these learners. According to graduates of alternative

programs, their degrees have met their needs and have been as useful as degrees earned through traditional institutional programs. Models and procedures utilized to design learner based, mastery level instruction are the same models which can be utilized by those designing learner based degree programs.

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Table 1: Some Differences Between Traditional and Nontraditional Degree Programs (After Thorson, 1992)

Traditional	Nontraditional
Provides regimented dependence on traditional systems.	Provides self-direction and autonomy.
Classroom is main source for exchange of knowledge.	Independent self-discovery is main source of knowledge.
Curricula oriented to school's tradition and societal needs.	Curricula oriented to learner's personal and professional needs.
Faculty member transmits block of knowledge to learners.	Faculty member acts as mentor and facilitator of learning experiences.
Degree requirements based on bureaucratic standards.	Degree requirements based on learner's needs, goals and on practical standards.
Degree awarded when all prescribed classes have been completed.	Degree awarded by credits based on previous college-level knowledge and academic standards agreed to by faculty and learner.

Figure 1:
Institutional Model of Instruction

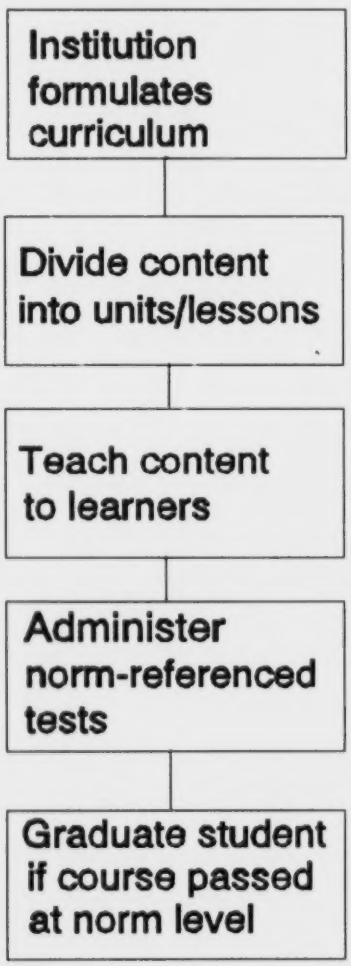
Institution formulates curriculum
Divide content into units/lessons
Teach content to learners
Administer norm-referenced tests
Graduate student if course passed at norm level

Figure 2:
Institutional Model for Degree Programs

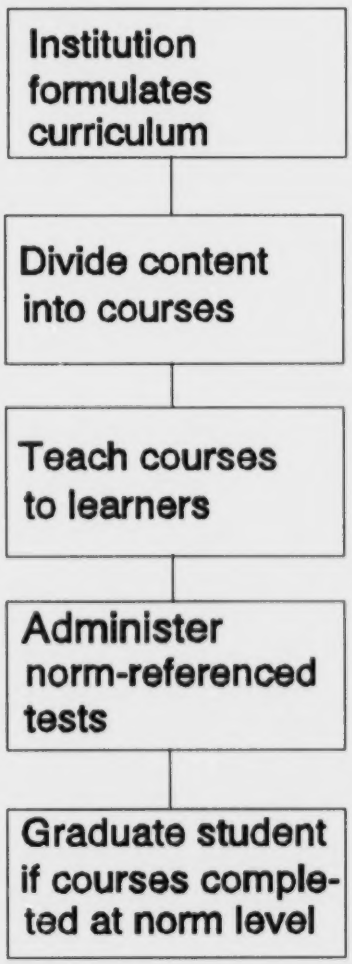
Institution formulates curriculum
Divide content into courses
Teach courses to learners
Administer norm-referenced tests
Graduate student if courses completed at norm level

Figure 3:
Systematic Process of
Instructional Design
(After dick & Carey, 1990)